

REMARKS

In the Office Action, the Examiner indicated that claims 1 through 21 are pending in the application and the Examiner rejected all claims.

Claim Rejections, 35 U.S.C. §102

In item 4 on page 2 of the Office Action, the Examiner rejected claims 1-21 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,687,732 to Bector et al. ("Bector").

The Present Invention

The present invention is directed to an improved Network Address Translation and Port Mapping (NAT) method and system which overcomes the traffic bottleneck problems encountered in conventional NAT systems and methods. The improved NAT system configures multiple servers (known in the art as "origin servers") to perform outbound translations on response packets prepared by the servers, so that the response packets can be sent to the clients directly without having to pass through the NAT machine. This solves the traffic bottleneck problems at the NAT machine.

Particularly, the improved NAT system includes a single NAT machine and a plurality of identical origin servers, each server being provided with an outbound translation module capable of performing outbound translations on response packets prepared by the server. The NAT machine provides translation instructions to the outbound translation module of each server. The translation instructions carry client information (e.g., client IP address, client port number, etc.)

so that the response packet can be sent to an appropriate client based on the client information. Using the translation instructions, the server translates the response packets and transmits the translated response packets directly to the client, thereby bypassing the NAT machine.

By configuring the servers, instead of the NAT machine, to perform outbound translations on the response packets, the traffic bottleneck problem and the capacity limitation imposed by the conventional NAT machines are eliminated and the overall operation and performance of the system is improved.

U.S. Patent No. 6,687,732 to Bector et al.

U.S. Patent No. 6,687,732 to Bector et al. ("Bector") teaches an Internet Protocol (IP) driver that includes a mechanism that enables a server to bypass packets associated with certain destinations, sources, or a combination of the two based upon their IP address. Bector teaches, as prior art, the concept of "proxy interception" whereby a proxy processing engine, handles loads that are initially directed to an Internet server. Bector improves upon this process by providing a system, mechanism and method for dynamically determining whether to dispatch traffic to the local proxy server, or to bypass the proxy server to send the traffic to a remote server or to the original target origin server.

The invention of Bector includes translation tables that enable the proxy server to be bypassed as part of the request from the client. The logic described in the Bector patent deals with decisions being made on the request side of traffic and is focused on eliminating redundant or useless processing exclusively on the way to the request destination, based on rules. The logic

is stored on the NAT machine and/or the proxy server. The teachings of Bector are based on logic stored in the NAT, which lies in the request path between the client (on one side) and the proxy and origin servers (on the other side). A determination is made if the translation instructions are available on the proxy. If so, that is the destination chosen. Otherwise, the request is sent to the origin server.

The Cited Prior Art Does Not Anticipate the Claimed Invention

The MPEP and case law provide the following definition of anticipation for the purposes of 35 U.S.C. §102:

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.”
MPEP §2131 citing *Verdegaal Bros. v. Union Oil Company of California*, 814 F.2d 628, 631, 2 U.S.P.Q. 2d 1051, 1053 (Fed. Cir. 1987)

The Examiner Has Not Established a *prima facie* Case of Anticipation

As noted above, the present claimed invention includes the bypassing of the NAT on the response path so that, as much as possible, the origin servers perform outbound translations on response packets prepared by the servers, so that the response packets can be sent to the client directly without having to pass through the NAT machine. This is expressly claimed in each of the independent claims herein (applicant notes that the claims do not expressly recite “origin” servers. As is clear from the specification, and from a reading of Bector, the servers referred to in the present invention are well known in the art as “origin” servers. However, if the Examiner believes that expressly identifying the servers as origin servers in the claims will make this fact more clear, the undersigned attorney authorizes the Examiner to make such amendment by

Examiner's Amendment, as such as amendment would merely clarify and not limit the scope of the claims).

Without any such teaching, the claimed invention patentably defines over Bector. Further, nothing in Bector suggests this aspect of the claimed invention. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of claims 1-21 under 35 U.S.C. §102 based on Bector.

Applicant provides the following to further explain and describe the differences between the claimed invention and Bector.

Claim 1 focuses on activities that take place on the origin server. This does not exist in Bector. The translation tables of the present invention enable the router/NAT machine to be bypassed as part of the response to the client. Bector's translation tables enable the proxy to be bypassed as part of the request to the client.

In the claimed invention, no choice is made as part of consulting the tables; it is binary. If the translation instructions are there, they are used, and cause a translation which allows the return traffic to flow directly back to the client. If the translation instructions are not there, the return traffic flows directly back to the NAT machine. In the Bector patent, all logic deals with decisions being made on the request side of traffic and is focused on eliminating redundant or useless processing, exclusively on the way to the request destination, based on rules. The present invention is focused entirely on the return flow of traffic with the sole focus of bypassing the router/NAT machine from where the packet came.

With respect to claim 3, Bector is based on logic in a router/NAT which lies in the request path between the client (on one side) and the proxy and origin server (on the other side). The determination is made if the translation instructions are available on the proxy; if so, that is the destination chosen. Otherwise, the request is sent to the origin server. In the claimed invention, on the other hand, only the return flow of traffic is involved, and only in the origin server.

With respect to claim 5, the sending of translation instructions to the origin server is completely different from the communication identified in Bector. The claimed invention uses a sideband communication to provide the origin server with new information. It is not included in the connection itself, but rather in a separate communication. Bector has no form of this communication between any of the entities (router/NAT, proxy, or origin server). Bector's reference to translation instructions simply describes how the packets get translated before they get forwarded to the next network hop in the request path.

With respect to the rejection of claim 6, the lines cited by the Examiner, Bector makes no comment on information to be modified in the "response" packet. Rather, Bector points out the network address translation that takes place on the router/NAT related to the request packet that will be forwarded on to the origin server. Claim 6 refers to the changes that take place on the origin server to modify the response packet that will flow directly back to the client, bypassing the router/NAT machine.

With respect to claim 7, Bector is entirely directed to the request packet and not to the response packet. Further, in Bector, all determination and changes are made on the router/NAT

machine. The claims of claim 7 refer to determination and changes made in response to packets on the origin server.

With respect to claim 8, Bector includes no references to transmitting instructions from the router/NAT machine to the origin server in order to modify translation tables in the origin server. Further, nothing is mentioned in Bector regarding the origin server responding with communications that the transaction is complete. In the present invention, these are sideband communications between the router/NAT driver and the origin server drivers. This is not found in Bector.

Claims 9-21 are system and computer program product claims corresponding to claims 1-8. The comments above with respect to claims 1-8 apply to claims 9-21 as well. Accordingly, each of the independent claims, and all claims depending therefrom, patentably define over Bector and are in condition for allowance.


Conclusion

The present invention is not taught or suggested by the prior art. Accordingly, the Examiner is respectfully requested to reconsider and withdraw the rejection of the claims. An early Notice of Allowance is earnestly solicited.

A Petition extending the period for response, as well as a Credit Card Payment Authorization Form are enclosed. The Commissioner is hereby authorized to charge any additional fees associated with this communication to Deposit Account No. 19-5425.

Respectfully submitted

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Date


Mark D. Simpson, Esquire
Registration No. 32,942

SYNNESTVEDT & LECHNER LLP
2600 ARAMARK Tower
1101 Market Street
Philadelphia, PA 19107

Telephone: (215) 923-4466
Facsimile: (215) 923-2189